



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/172,298	10/14/1998	HOWARD E. RHODES	M4065.101/P1	9094

7590 03/13/2003

THOMAS J D'AMICO  
DICKSTEIN SHAPIRO MORIN AND OSHINSKY  
2101 L STREET NW  
WASHINGTON, DC 200371526

EXAMINER

MUNSON, GENE M

ART UNIT PAPER NUMBER

2811

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

172, 298

Applicant(s)

H. RHODES

Examiner

G. MUNSON

Group Art Unit

2811

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 27 December 2002
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-144 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-144 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_ ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 2811

Claim 66 is rejected under 35 U.S.C. 112, first paragraph. The “processor” (claim 53) for particular use in a “camera” remains unclear from the specification (page 19) and Figure 11. See 37 CFR 1.71(b).

Claim 130 is rejected under 35 U.S.C. 112, first and second paragraphs. This claim appears misdescriptive as contrary to Figure 10.

The process terminology (claims 31, 32, 38, 41, 42, 51, etc.) is considered only in terms of a necessary *resultant structure* from the process. The process itself is not at issue. The device claims are *not* limited to the recited process. See MPEP 2113; *In re Brown*, 173 USPQ 685 (CCPA 1972); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980); *In re Marosi*, 218 USPQ 289,292,293 (CCPA 1983); *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

Art Unit: 2811

skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-13 and 120 are rejected under 35 U.S.C. 102 as unpatentable as shown by Anagnostopoulos et al. See Figures 3A, 3B, 3C. The “nitrogen containing second insulating” layer reads on an ONO layer or NO layer as in Anagnostopoulos et al. See present claims 9-13. The “first” & “second” gate stacks read on electrodes 32 with “photogate” 30. For claim 2, as an alternative, in Figures 3B, 3C, the “first” & “second” gate stacks read on electrodes 30 with “photogate” 32. The “first” insulating layer reads on silicon oxide layer 36 (Figure 3A), on ONO layer or layer 43 (Figure 3B), and on NO layer or layer 52 (Figure 3C).

Claims 1-3, 7, 12, 14, 15, 18, 19, 25, 26, 28, 29, 31-33, 38, 39, 41-44, 46, 51, 53-55, 57-59, 66, 115-125 and 135-139 are rejected under 35 U.S.C. 103 as unpatentable over the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, considered together. For an imaging device as in the acknowledged prior art (Figures 1, 2), it would have been obvious to use a photogate insulator with higher dielectric constant, as suggested by Nagasaki et al (Figure 17; columns 2-3), in order to increase the capacity of the photogate. From Nagasaki et al (column 2 lines 22-24, column 3, table 1), both silicon nitride and silicon oxide were conventional materials for use as a photogate insulator, which would have been obvious to use as a photogate insulator. From Nagasaki et al, it would have been obvious that the materials used in this invention, e.g., conventional silicon nitride as in claim 12, would achieve a higher capacity of the photogate than use of conventional silicon oxide. Thus, it would have been obvious to use conventional silicon nitride, as in claim 12, in order to achieve a higher capacity of the photogate than the use of conventional silicon

Art Unit: 2811

oxide. From Nagasaki et al, it also would have been obvious that the materials used in this invention would achieve a lower capacity of the photogate than would use of tantalum oxide, because tantalum oxide has a higher dielectric constant than silicon nitride. The conclusion is that the claimed invention as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art.

Claims 4, 27, 45, 56, 126-134 and 140-144 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Koike et al. The claimed materials (claims 4, 27, 45, 56) are conventional to use as a transparent or semi-transparent materials, as applicant would agree and as shown by Koike et al (column 3), which would have been obvious to use to achieve a transparent or semi-transparent photogate electrode. Note that "tin oxide" reads on  $\text{SnO}_2$ . Moreover, it would have been obvious to have the photogate insulator extend over an adjacent "gate stack" (claims 126-134, 140-144) as the photogate insulator does over "gate stack" 18 of Koike et al (Figure 2), in order to achieve a photogate insulator and adjacent gate as in the acknowledged prior art in this application (Figure 1)

Claims 8, 10, 11, 20, 22, 23, 34, 36, 37, 47, 49, 50, 60, 62 and 63 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered with Suzuki. The claimed materials (NO or ON), used by Suzuki (column 4), are well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.03),

Art Unit: 2811

which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

Claims 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-125 and 135-139 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Okada et al and Anagnostopoulos et al. The claimed material (ONO), used by Okada et al and Anagnostopoulos et al, is well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.03), which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate. Moreover, it would have been obvious to use a silicon nitride layer for a photogate insulator, because silicon nitride has a higher index of refraction which improves light transmittance through the gate electrode, and because silicon nitride blocks indium from leaching out of an indium tin oxide photogate and into the substrate (Anagnostopoulos et al, columns 3-4). Furthermore, it would have been obvious to use a silicon nitride layer to enhance reliability in terms of dielectric strength for a photogate insulator (Okada et al, column 12, lines 29-31).

Claims 126-134 and 140-144 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being acknowledged prior art in this application (Figures 1,2, pages 1-12), Nagasaki et al, Okada et al and Anagnostopoulos et al, as in the above rejection, further considered together with Koike et al, applied as in the above rejection of these claims.

The references are of record.

Art Unit: 2811

The arguments in the response, filed 27 December 2002, have been considered but are not persuasive. Contrary to the response (page 4), the specification (page 19) does not describe the “processor” of claim 66 as being disclosed in the Nixon et al paper. Moreover, applicant cannot incorporate essential material for the “processor” of claim 66 by reference to the Nixon et al paper. See MPEP 608.01(p).

Contrary to the response (pages 5-6), the “nitrogen containing second insulating” layer reads on an ONO layer or NO layer as in Anagnostopoulos et al, since present claims 9-13 encompass an ONO layer or NO layer as the “nitrogen containing second insulating” layer. In Figure 3A, Anagnostopoulos et al do show a “first” insulating layer 36 “in contact with said substrate and beneath each of said first and second gate stacks” 32, *and* “nitrogen containing second insulating” ONO layer 35, 34, 36 “in contact with said substrate and beneath said photogate” 30. See present claims 9 and 13. The response does not point out any language in claim 1 which distinguishes over Anagnostopoulos et al.

Contrary to the response (pages 7-9), from Nagasaki et al (column 2 lines 22-24, column 3, table 1), silicon nitride and silicon oxide were conventional materials for use as a photogate insulator. It would have been obvious to use silicon nitride or silicon oxide as a photogate insulator, and to use conventional silicon nitride as in claim 12, in order to achieve a higher capacity of the photogate than the use of conventional silicon oxide.

No claim is allowed.

This action is **FINAL**.

Art Unit: 2811

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of appropriate amount.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing, whichever is longer, of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



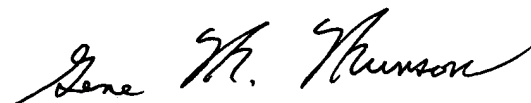
Art Unit: 2811

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to G. Munson at telephone number (703) 308-4925 or 0956.

Munson

3-11-03



GENE M. MUNSON  
EXAMINER  
GROUP ART UNIT 2811